

ABSTRACT OF THE DISCLOSURE

Provided is a CCD image sensor wherein driving power and power consumption are reduced without increasing unusable regions. Photodiodes are arranged in a honeycomb form. Each vertical charge-transfer channel is made in such a manner that invasion portions, which invade spaces between the respective photoelectric transducers in photoelectric transducer columns positioned at both sides thereof, and non-invasion portions are alternately and continuously arranged, and the channel extends in the vertical direction to meander between the photodiodes arranged in the honeycomb form. Transfer electrodes extending in the horizontal direction to pass between the photodiodes are formed on the semiconductor substrate as monolayer electrodes. By making the transfer electrodes as the monolayer electrodes in this way, multi-layered poly-silicon electrode structure becomes unnecessary.